

ACCESSORY WIRING - AUTOMOTIVE

- I. **GENERAL**: It is the intent of this specification to describe the minimum requirements for wiring any accessories that are installed in or on any piece of City of Milwaukee equipment.
- II. **SAFETY/HEALTH**: The wiring shall comply with applicable Federal Motor Vehicle Safety Standards, S.A.E. Codes, Federal Occupational Safety and Health Act and be in accordance with the Wisconsin Administrative Code.
- III. **TECHNICAL REQUIREMENTS**: Vendors and vendor subcontractors shall adhere to the following component requirements and procedures for all add-on electrical accessories installed onto City equipment. All wiring and installations are subject to City approval.
 - A. **WIRE**: The wire used shall be of adequate gauge to carry the anticipated current loads.
 - B. **ADD-ON ACCESSORIES/FUSES**: All add-on accessories shall be wired HOT unless otherwise noted in an accompanying specification, into the equipment main fuse block posts, using a mounted **PICO 0950C** weatherproof fuse holder (no substitutes) and ATC type fuse for each add-on circuit. For multiple fuse holders located under the hood of the vehicle, each fuse holder shall be mounted on a fabricated bracket in a City approved location. The installed fuses shall be sized to afford full protection of each circuit. Circuit breakers are an acceptable substitute for fuses, if required as part of an accompanying specification. All add-on circuits shall be **permanently labeled**, and include a **simple wiring diagram** provided at time of delivery to the City. Add-on accessories shall NOT be added to any existing circuit. In addition, **no power or grounding wires shall be attached to the vehicle/equipment battery cables**. Factory grounding points shall be used whenever possible.
 - C. **CONNECTIONS-SPLICES**: All connections and splices shall be made using the correct size insulated butt connector, properly assembled, soldered, or crimped. **Self stripping quick splice type connectors such as Scotchlok are not acceptable, and will be rejected**. In addition, any damage caused to the existing vehicle/equipment wiring shall be the responsibility of the vendor, and repaired to the satisfaction of the City.
 - D. **INSULATION**: All connections and splices shall be protected with heat shrinkable tubing, properly installed using the correct tooling, such as a heat gun. **NOTE**: The use of heat seal type butt connectors such as waterproof "Crimp 'N Seal", or equal can be used to satisfy requirements C and D of this specification.
 - E. **EXPOSED WIRING**: All wiring exposed to moisture or wear shall be protected using the correct size wiring loom, which shall extend the full length of the wiring to within six inches of its destination. **The recommended loom is convoluted split type plastic**, or an equivalent type loom, which will fully enclose and protect the wiring. Spiral wrap-around

type loom is not acceptable. The loom shall be anchored firmly at least once every 24 inches using nylon cable ties or cable clamps.

- F. GROMMETS: All holes drilled or cut for wiring, cables, looms, controls, etc., shall be fitted with the correct size grommet, or type of boot to fully protect all accessory wiring. All unused holes or openings shall be sealed in a City approved manner.

- IV. REFERENCE: If you have any questions about this specification, please contact the purchasing agent listed on the bid.